

IN THE CLAIMS

1 (Currently amended): A method for processing a layer of material sensitive to radiation, the layer being formed on a substrate, the method comprising:

irradiating the material with said radiation; and

developing the material to remove a portion of the material and expose one portion of the substrate but not another portion of the substrate, creating a pattern of the exposed and unexposed portions ~~defined by the exposed portion~~ of the substrate;

wherein the irradiating operation comprises:

(a) irradiating said material with said radiation through a first mask, wherein the first mask has a pattern of a clear region and a non-clear region; and

(b) irradiating said material with said radiation without a mask, or through a second mask which has a clear region at a position of at least a portion of the non-clear region of the first mask, wherein a radiation dose in the operation (b) is insufficient by itself to enable the developing operation to create a pattern with a portion of the substrate exposed and a portion of the substrate not exposed;

wherein the pattern of the exposed and unexposed portions of the substrate created in the developing operation reproduces the pattern of the clear and non-clear regions of the first mask.

2 (New): The method of Claim 1 wherein a radiation dose in the operation (a) is insufficient by itself to modify the material to enable the developing operation to create said pattern of the exposed and unexposed portions of the substrate.

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3 (Original): The method of Claim 1 wherein the material is a positive resist, and the radiation dose in the operation (b) is insufficient by itself to make the resist irradiated in the operation (b) removed in the developing operation.

4 (Original): The method of Claim 1 wherein the material is a negative resist, and the radiation dose in the operation (b) is insufficient by itself to make the resist irradiated in the operation (b) withstand the resist removal in the developing operation.

5 (Original): The method of Claim 1 wherein the operation (b) comprises irradiating said material through the second mask which has a non-clear region in addition to the clear region.

6 (Original): The method of Claim 5 wherein the non-clear region of the first mask has a cavity, and the clear region of the second mask overlaps the position of the non-clear region of the first mask at said cavity.

7 (Original): The method of Claim 6 wherein the non-clear region of the second mask does not have a cavity at a position of the cavity of the first mask.

8 (Original): The method of Claim 5 wherein the clear region of the first mask comprises two clear sub-regions separated by a non-clear gap; and

the clear region of the second mask covers the position of the non-clear gap.

9 (Original): The method of Claim 5 wherein the second mask is clear at each position at which the first mask is clear.

10 (Original): The method of Claim 5 wherein the clear region of the second mask does not cover the entire position of the clear region of the first mask.

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11 (Original): The method of Claim 5 wherein the clear region of the first mask comprises a contiguous elongated region surrounded by the non-clear region of the first mask, the contiguous elongated region having a convex end abutting the non-clear region of the first mask; and

the clear region of the second mask overlaps the position of the non-clear region of the first mask at said end, and extends at least to the position of a boundary between said end and the non-clear region of the first mask.

12 (Original): The method of Claim 11 wherein the clear region of the second mask covers the position of the boundary of said end and extends beyond the position of said boundary transversally to the direction of the elongated region.

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13 (Original): The method of Claim 5 wherein the clear region of the first mask comprises a plurality of contiguous elongated regions surrounded by the non-clear region of the first mask, each elongated region having a convex end abutting the non-clear region of the first mask; and

the clear region of the second mask comprises a contiguous region that overlaps the position of the non-clear region of the first mask and extends at least to the position of each said end.

14 (Original): The method of Claim 5 wherein the clear region of the second mask covers a position of the clear region of the first mask and extends beyond the position of the clear region of the first mask.

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15 (New): The method of Claim 6 wherein the non-clear region of the first mask has a cavity having a non-straight boundary adjacent to the clear region of the first mask, and the clear region of the second mask covers the position of the non-straight boundary.

16 (New): A method for processing a layer of material sensitive to radiation, the layer being formed on a substrate, the method comprising:

irradiating the material with said radiation; and

developing the material to remove a portion of the material and expose one portion of the substrate but not another portion of the substrate, creating a pattern of the exposed and unexposed portions of the substrate;

wherein the irradiating operation comprises:

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(a) irradiating said material with said radiation through a first mask, wherein the first mask has a pattern of a clear region and a non-clear region; and

(b) irradiating said material with said radiation through a second mask which has a clear region at a position of at least a portion of the non-clear region of the first mask, wherein a radiation dose in the operation (b) is insufficient by itself to enable the developing operation to create a pattern with a portion of the substrate exposed and a portion of the substrate not exposed;

wherein the non-clear region of the first mask has a cavity having a non-straight boundary adjacent to the clear region of the first mask, and the clear region of the second mask covers the position of the non-straight boundary.

17 (New): A method for processing a layer of material sensitive to radiation, the layer being formed on a substrate, the method comprising:

irradiating the material with said radiation; and

developing the material to remove a portion of the material and expose one portion of the substrate but not another portion of the substrate, creating a pattern of the exposed and unexposed portions of the substrate;

wherein the irradiating operation comprises:

(a) irradiating said material with said radiation through a first mask, wherein the first mask has a clear region and a non-clear region; and

(b) irradiating said material with said radiation through a second mask which has a clear region at a position of at least a portion of the non-clear region of the first mask, wherein a radiation dose in the operation (b) is insufficient by itself to enable the developing operation to create a pattern with a portion of the substrate exposed and a portion of the substrate not exposed;

wherein the clear region of the first mask comprises two clear sub-regions separated by a non-clear gap; and

the clear region of the second mask covers the position of the non-clear gap and overlaps the two clear sub-regions adjacent to the gap.

18 (New): A method for processing a layer of material sensitive to radiation, the layer being formed on a substrate, the method comprising:

irradiating the material with said radiation; and

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mask

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developing the material to remove a portion of the material and expose one portion of the substrate but not another portion of the substrate, creating a pattern of the exposed and unexposed portions of the substrate;

wherein the irradiating operation comprises:

(a) irradiating said material with said radiation through a first mask, wherein the first mask has a clear region and a non-clear region, wherein the clear region comprises an array of elongated sub-regions; and

(b) irradiating said material with said radiation through a second mask which has a clear region and a non-clear region, wherein a radiation dose in the operation (b) is insufficient by itself to enable the developing operation to create a pattern with a portion of the substrate exposed and a portion of the substrate not exposed, wherein the clear region of the second mask comprises a plurality of strips, each strip covering the position of a column of the elongated sub-regions of the first mask.

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each
strip
covers
a column

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410M

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